# 24-Port 10/100Mbps Ethernet Switch

## User Guide

AirLink+

UG-ASW224-1103

Downloaded from www.Manualslib.com manuals search engine

## FCC Warning

This equipment has been tested and found to comply with the regulations for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with this user's guide, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his own expense.

## CE Mark Warning

This is a Class A product. In a domestic environment, this product may cause radio interference, in which case the user may be required to take adequate measures.

## UL Warning

- Elevated Operating Ambient Temperature—If installed in a closed or multi-unit rack assembly, the operating ambient temperature of the rack environment may be greater than room ambient. Therefore, consideration should be given to installing the equipment in an environment compatible with the manufacturer's maximum rated ambient temperature ($t_{MRA}$).
- Reduced Air Flow—Installation of the equipment in a rack should be such that the amount of air flow



Downloaded from www.Manualslib.com manuals search engine

required for safe operation of the equipment is not compromised.

- Mechanical Loading—Mounting of the equipment in the rack should be such that a hazardous condition is not achieved due to uneven mechanical loading.
- Circuit Overloading—Consideration should be given to the connection of the equipment to the supply circuit and the effect that overloading of circuits might have on over current protection and supply wiring. Appropriate consideration of equipment nameplate ratings should be used when addressing this concern.
- Reliable Earthing—Reliable earthing of rack-mounted equipment should be maintained. Particular attention should be given to supply connections other than direct connections to the branch circuit (e.g., use of power strips).



Downloaded from www.Manualslib.com manuals search engine

Downloaded from www.Manualslib.com manuals search engine

# Table of Contents

About this Guide ..... 6

Purpose ..... 6
Terms & Usage ..... 6
Overview of This User Guide ..... 6

Introduction ..... 7

Fast Ethernet Technology ..... 7
Switching Technology ..... 8
Features ..... 9

Unpacking & Installation ..... 10

Unpacking ..... 11
Installation ..... 11
Rack Mounting ..... 12

External Components ..... 13

Front Panel ..... 13
LED Indicator Panel ..... 15
Twisted Pair Ports ..... 15
Rear Panel ..... 16

Technical Specifications ..... 17

Technical Support ..... 19



Downloaded from www.Manualslib.com manuals search engine

# About This Guide

Congratulations on your purchase of the 24-port 10/100Mbps Ethernet Switch. This device integrates 100Mbps Fast Ethernet and 10Mbps Ethernet network capabilities in a highly flexible package.

## *Purpose*

This guide discusses how to install your 24-port 10/100Mbps Ethernet Switch.

## *Terms & Usage*

In this guide, the term "Switch" (first letter upper case) refers to your 24-port 10/100Mbps Ethernet Switch, and "switch" (first letter lower case) refers to other Ethernet switches.

## *Overview of this User's Guide*

This User Guide contains the following sections

**Introduction**—Describes the Switch and its features.

**Unpacking and Installation**—Helps you get started with the basic installation of the Switch.

**Identifying External Components**—Describes the Switch's front panel, rear panel, and LED indicators.

**Technical Specifications**—Lists the Switch's technical (general, physical and environmental, and performance) specifications.



Downloaded from www.Manualslib.com manuals search engine

# Introduction

This chapter describes the features of the Switch and some background information about Ethernet/Fast Ethernet switching technology.

## *Fast Ethernet Technology*

The growing importance of local area networks (LANs) and the increasing complexity of desktop computing applications are fueling the need for high performance networks. A number of high-speed LAN technologies have been proposed to provide greater bandwidth and improve client/server response times. Among them, 100BASE-T (Fast Ethernet) provides a non-disruptive, smooth evolution from the current 10BASE-T technology. The non-disruptive and smooth evolution nature, and the dominating potential market base, virtually guarantee cost effective and high performance Fast Ethernet solutions in the years to come.

100Mbps Fast Ethernet is a new standard specified by the IEEE 802.3 LAN committee. It is an extension of the 10Mbps Ethernet standard with the ability to transmit and receive data at 100Mbps, while maintaining the CSMA/CD Ethernet protocol. Since the 100Mbps Fast Ethernet is compatible with all other 10Mbps Ethernet environments, it provides a straightforward upgrade and takes advantage of the existing investment in hardware, software, and personnel training.



Downloaded from www.Manualslib.com manuals search engine

## *Switching Technology*

Another approach to pushing beyond the limits of Ethernet technology is the development of switching technology. A switch bridge Ethernet packets at the MAC address level of the Ethernet protocol transmitting among connected Ethernet or Fast Ethernet LAN segments.

Switching is a cost-effective way of increasing the total network capacity available to users on a local area network. A switch increases capacity and decreases network loading by dividing a local area network into different segments, which don't compete with each other for network transmission capacity.

The switch acts as a high-speed selective bridge between the individual segments. The switch automatically forwards traffic from one segment to another without interfering with any other segments. This multiplies the total network capacity while maintaining the same network cabling and adapter cards.

For Fast Ethernet networks, a switch is an effective way of eliminating problems of chaining hubs beyond the "two-repeater limit." A switch can be used to split parts of the network into different collision domains, making it possible to expand your Fast Ethernet network beyond the 205-meter network diameter limit for 100BASE-TX networks. Switches supporting both traditional 10Mbps Ethernet and 100Mbps Fast Ethernet are also ideal for bridging existing 10Mbps networks with the new 100Mbps networks.

Switching LAN technology is a marked improvement over the previous generation of network bridges, which were



Downloaded from www.Manualslib.com manuals search engine

characterized by higher latencies. Routers are also used to segment LANs. However, since routers are expensive, difficult to setup, and require intensive maintenance, they are relatively impractical for the network. Switches, on the other hand, are less expensive, easier to set up, and practically maintenance free, which make them an ideal solution to today's LAN congestion problems.

## *Features*

The Switch is designed for easy installation and high performance in an environment where traffic on the network and the number of user increase continuously.

The Switch, with its rack size, is designed for middle- to large -sized workgroups. The Switch provides immediate access to a rapidly growing network through a wide range of user-reliable functions.

The Switch is ideal for deployment with multiple high-speed servers for shared bandwidth 10Mbps or 100Mbps workgroups. With the highest bandwidth 200 Mbps (100Mbps full-duplex mode), any port can provide workstations with a congestion-free data pipe for simultaneous access to the server.

The Switch is expandable by cascading two or more switches together. Since all ports support 200Mbps, the Switch can be cascaded from any port and to any number of switches.

The Switch is a perfect choice for site planning to upgrade to Fast Ethernet in the future. Ethernet workgroups can connect to the Switch now, and change adapters and hubs



Downloaded from www.Manualslib.com manuals search engine

anytime later without needing to change the Switch or reconfigure the network.

The Switch combine dynamic memory allocation with store-and-forward switching to ensure that the buffer is effectively allocated for each port, while controlling the data flow between the transmit and receive nodes to guarantee against all possible packet loss.

The Switch is an unmanaged 10/100 Fast Ethernet Switch that offers solutions in accelerating small Ethernet workgroup bandwidth. Other key features are:

- 24-port 10/100Mbps Ethernet Switch with RJ-45 connectors
- Support auto-negotiation for speed and duplex modes for each port
- Supports auto-MDI/MDI-X for each port
- Wire speed reception and transmission
- Store-and-Forward switching method
- Integrated address look-up engine, supports 8K absolute MAC addresses
- Supports 2.5-Mbits RAM for data buffering
- Front-panel diagnostic LEDs
- IEEE 802.3x flow control for full-duplex
- Back pressure flow control for half-duplex
- Standard 19" Rack-mountable size

# Unpacking & Installation

This chapter provides unpacking and setup information for the Switch.



Downloaded from www.Manualslib.com manuals search engine

## Unpacking

Open the shipping cartons of the Switch and carefully unpacks its contents. The carton should contain the following items:

- One the 24-port 10/100Mbps Fast Ethernet Switch
- One AC power cord, suitable for your area's electrical power connections
- Four rubber feet for shock cushioning
- Screws and two mounting brackets
- This User Guide

If any item is missing or damaged, contact your local reseller for replacement.

## Installation

The site where you install the Switch stack may greatly affect its performance. Use the following guidelines when installing the Switch.

- Install the Switch in a cool and dry place. See Specifications for the acceptable temperature and humidity operating ranges.
- Install the Switch in a site free from strong electromagnetic field generators (such as motors), vibration, dust, and direct exposure to sunlight.
- Leave at least 10 cm of space at the front and rear of the hub for ventilation.
- Install the Switch on a sturdy, level surface that can support its weight, or in an EIA standard-size equipment rack. For information on rack installation, see the Rack Mounting section.



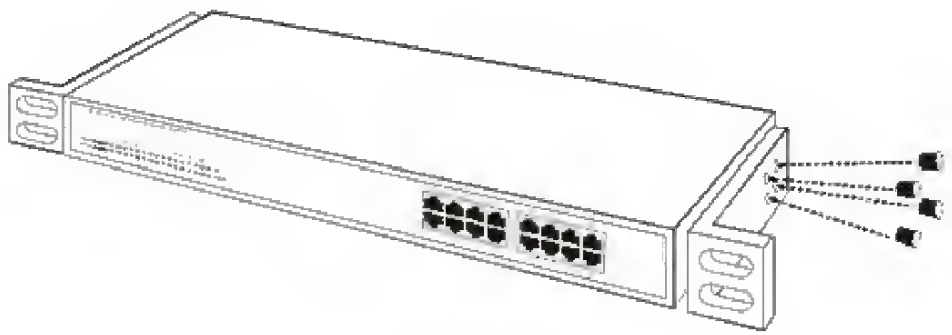
Downloaded from www.Manualslib.com manuals search engine

When installing the Switch on a level surface, attach the rubber feet to the bottom of each device. The rubber feet cushion the hub and protect the hub case from scratching.

## *Rack Mounting*

The switch can be mounted in an EIA standard-size, 19-inch rack, which can be placed in a wiring closet with other equipment. Attach the mounting brackets at the switch's front panel (one on each side), and secure them with the provided screws (see Figure 1).

***Figure 1. Attach Brackets to Switch***

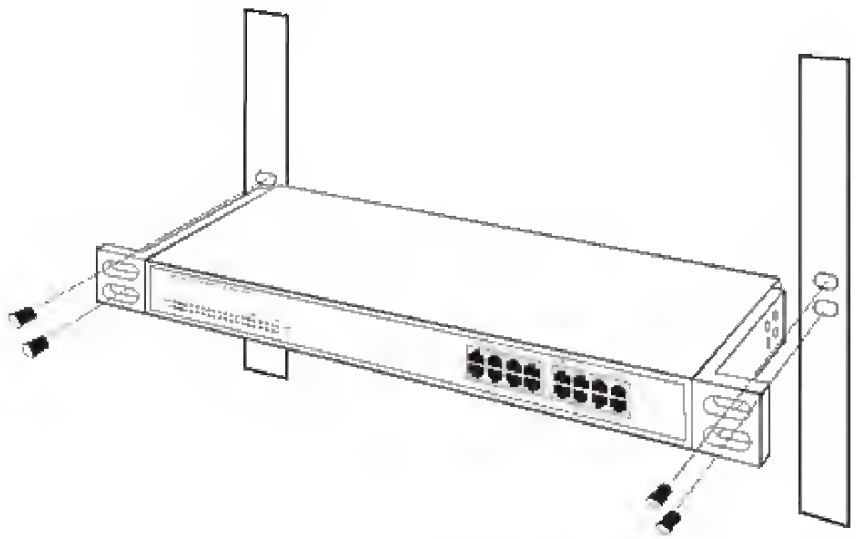




Downloaded from www.Manualslib.com manuals search engine

Then, use screws provided with the equipment rack to mount each switch in the rack (see Figure 2).

***Figure 2. Attach Switch to Rack***



# External Components

This section identifies all the major external components of the switch.

## *Front Panel*

Figure 3 shows the front panels of the switch.



Downloaded from www.Manualslib.com manuals search engine

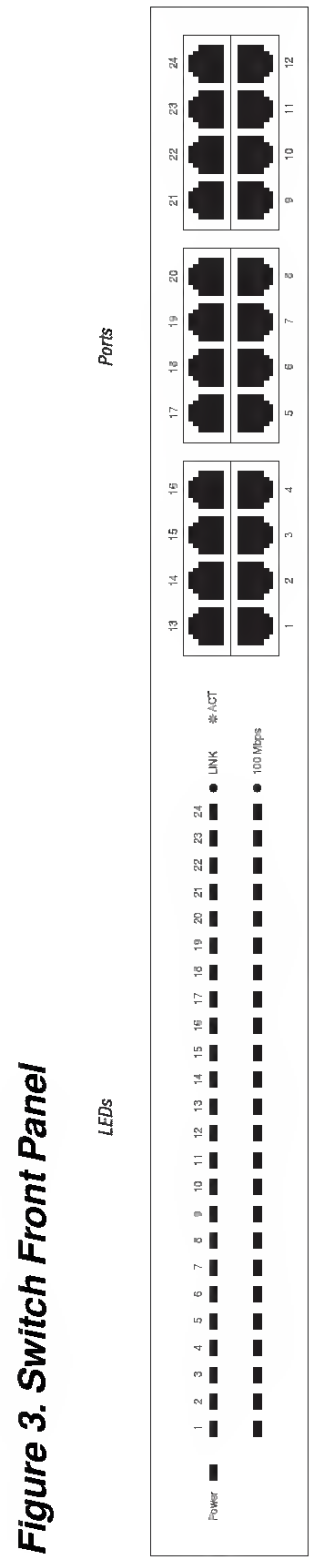



**Figure 3. Switch Front Panel**

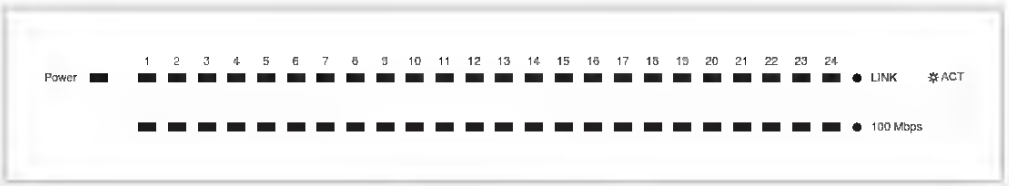


Downloaded from www.Manualslib.com manuals search engine

## LED Indicator Panel

Figure 4 shows the Switch's LED panel.

***Figure 4. LED Panel***




The LED indicator panel contains the following indicators:

- **Power (PWR)**—This indicator lights green when the switch is receiving power. Otherwise, it is off.
- **Link/Activity (green)**—This indicator lights up green when the port is connected to a Fast Ethernet or Ethernet station. If this indicator is blinking green, the Switch is transmitting or receiving data.
- **100 Mbps (green)**—This indicator lights up green when the port is connected to a 100-Mbps Fast Ethernet station. Otherwise, the LED is off when the port is connected to a 10-Mbps Ethernet station.

## Twisted-Pair Ports

Twisted-pair ports support automatic MDI/MDIX crossover detection function gives true 'plug and play' capability without the need of confusing crossover cables or crossover ports.

With the Auto-MDI function, you just need to plug-in the network cable to the hub directly and no need to care if the



Downloaded from www.Manualslib.com manuals search engine

end node is Network Interface Card (NIC) or switches and hubs.

## Rear Panel

The AC power connector is located on the rear panel and is a three-pronged connector that supports the power cord (see Figure 5). Plug in the female connector of the provided power cord into this connector, and the male into a power outlet. The Switch supports input voltages from 100 to 240 AC at 50 to 60 Hz.

***Figure 5. AC Power Connector***

Downloaded from www.Manualslib.com manuals search engine

# Technical Specifications

Tables 1 to 3 provide Switch specifications.

*Table 1. General Specifications*

| Feature | Description |
|---|---|
| Standards | IEEE 802.3 10 Base-T ethernet<br>IEEE 802.3a 100 Base-TX fast ethernet |
| Protocol | CSMA/CD |
| Data transfer rate | Ethernet: 10 Mbps (half duplex), 20 Mbps (full duplex)<br>Fast ethernet: 100 Mbps (half duplex), 200 Mbps (full duplex) |
| Topology | Star |
| Network cables | 10 Base-T: Two-pair UTP Cat. 3, 4, 5; EIA/TIA-568 100-Ω STP<br>100 Base-TX: Two-pair UTP Cat. 5; EIA/TIA-568 100-Ω STP |
| Number of ports | 24 × 10/100 Mbps auto-MDI/MDI-X ports |



Downloaded from www.Manualslib.com manuals search engine

*Table 2. Physical & Environmental Specifications*

| Feature | Specification |
|---|---|
| AC inputs | 100 to 240 VAC, 50- or 60-Hz internal universal power supply |
| Power consumption | 6.4 watts (maximum) |
| Temperature | Operating: 0˚ to 40˚ C<br>Storage: –10˚ to 70˚ C |
| Humidity | Operating: 10 to 90%<br>Storage: 5 to 90% |
| Dimensions | 440 x 140 x 44 mm (W × H × D) |
| EMI | FCC Class B, CE Mark Class B, VCCI Class B |
| Safety | CUL, CB |



Downloaded from www.Manualslib.com manuals search engine

*Table 3. Performance Specifications*

| Feature | Specification |
|---|---|
| Transmission method | Store-and-forward |
| RAM buffer | 512 Kbytes per device |
| Filtering address table | 8K entries per device |
| Packet filtering/ forwarding rate | 10Mbps ethernet: 14,880/pps<br>100Mbps fast ethernet: 148,800/pps |
| MAC address learning | Automatic update |

# Technical Support

E-mail: support@airlinkplus.com

Toll Free: 1-888-746-3238

Web Site: www.airlinkplus.com



Downloaded from www.Manualslib.com manuals search engine

Copyright © 2003 AirLink+. All rights reserved. AirLink+, the stylized AirLink+ logo, specific product designations, and all other words and logos that are identified as trademarks and/or service marks are, unless noted otherwise, the trademarks and service marks of AirLink+. All other product or service names are the property of their respective holders. AirLink+ products are protected under numerous U.S. and foreign patents and pending applications, maskwork rights, and copyrights.



Downloaded from www.Manualslib.com manuals search engine